CLAIMS:

1. A video encoder comprising:

means for receiving an input video signal (201);

at least one encoder (303, 310, 320, 420, 430, 540, 810) for producing from the input video signal a scalable coding, the coding comprising at least a base encoded signal (130); an enhanced encoded signal (314); and an additional enhanced encoded signal (325, 435, 545),

wherein each encoder is compatible with at least one standard.

2. The encoder of claim 1, wherein at least one of the enhanced encoded signals (314) provides for SNR scalability and at least one of the enhanced encoded signals (325) provides for spatial scalability.

3. The encoder of claim 1, wherein the at least one encoder comprises at least three identical standards compatible encoding modules.

4. The encoder of claim 1, wherein all of the encoders operate in the pixel domain.

5. The encoder of claim 1, wherein each encoder is self-contained, so that, for production of each encoded layer, no internal results from other encoders are necessary.

6. A video encoder comprising:

means for receiving an input video stream (201); and

at least one encoder/decoder (303/303', 310/310', 420/420', 430/531, 810/810') pair for supplying a plurality of encoded layers of a scalable output video stream, each encoder/decoder pair comprising a respective self-contained encoder module (303, 310, 420, 430, 810) and a respective self-contained decoder module (303', 310', 420', 531, 810'), which decoder module is distinct from the encoder module.

7. The encoder of claim 6, wherein the output video stream comprises at least 3 encoded layers (130, 314, 325, 435, 545).

8.   The encoder of claim 6, wherein at least one of the encoded layers (314, 425, 545) yields gives SNR scalability and at least one other of the encoded layers (325, 435) yields spatial scalability.

9.   The encoder of claim 6, wherein all of the encoder/decoder pairs are identical.

10.   The encoder of claim 6, wherein each encoder and each decoder is self-contained, not requiring, for the production of an encoded layer, any internal processing results used in the production of any other encoded layer.

11.   The encoder of claim 6, further comprising:
        means for downscaling (202) the input video stream to create a downscaled stream;
        means for upscaling (306, 406) signals derived from the input video stream to create an upscaled stream;
        wherein at least two of encoded layers (130, 314, 425), are derived from the downscaled stream and at least one of the encoded layers (325, 435, 545)is derived from the upscaled video stream.

12.   The encoder of claim 6, comprising at least three encoder/decoder pairs wherein each encoder/decoder pair supplies a respective one of the encoded layers.

13.   The encoder of claim 12, comprising at least four encoder/decoder pairs.

14.   The encoder of claim 6, further comprising, for producing each respective encoded layer other than a base encoded layer:
        at least one means for supplying a difference (207, 316, 407, 416, 516) between signals derived from the input video stream and from a decoded version of a prior encoded layer;
        – means for adding an offset (209, 319, 408, 418, 508) to a result of the difference to create an offset signal;

means for supplying the offset signal for encoding to produce the respective
encoded layer.

15.   The encoder of claim 6, wherein each encoder/decoder pair is a of a standards
compatible type and operates in the pixel domain.

16.   The encoder of claim 6, further comprising:
        switching means (s1, s2, s3);
        at least one means for supplying an offset (319, 209);
        wherein there is only a single encoder/decoder pair (810/810') and successive
layers of encoding are produced from the single encoder/decoder pair using the switching
means and the at least one means for supplying an offset to feed back results from prior
encodings.

17.   An encoder for providing a scalable video encoding, the encoder comprising:
        means for receiving a single video input stream (201);
        at least one encoder (303, 310, 320, 420, 430, 540, 810) operating in the pixel
domain for supplying at least three encoded layers from the video input, wherein
        for producing a base layer (130) the at least one encoder operates on a downscaled
version of the single video input stream;
        for production of each layer other than the first layer (314, 325, 425, 435, 545), the
at least one encoder is coupled to receive a respective difference signal or a signal derived
from the respective difference signal, the respective difference signal representing a
difference between
        either a downscaled version of the single video input stream or the single video
input stream itself; and
        either a decoded version of a previous encoded layer or an upscaled version of the
decoded version of the previous encoded layer.

18.   The encoder of claim 17, comprising means for supplying an offset (209, 319, 408,
418, 508) to each respective difference signal prior to applying the respective difference
signal to the at least one encoder for production of a next layer.

19.   The encoder of claim 17, wherein at least one of the encoded layers (325, 435) gives spatial scalability and at least one of the encoded layers (314, 425, 545) gives SNR scalability.

20.   An encoding method comprising:

receiving an input video signal;

encoding the video signal to produce an SNR and spatial scalable coding, the coding comprising a base encoded signal and at least two enhanced encoded signals, wherein the encoding uses at least one encoder, each encoder being of a standards compatible type.

21.   The method of claim 20, wherein the encoding uses at least one encoder/decoder pair.

22.   The method of claim 20, further comprising downscaling the input video signal to create a downscaled version of the video signal; and wherein the base encoded signal at least one of the enhanced encoded signals are produced from the downscaled version.

23.   The method of claim 22 further comprising:

decoding the base encoded signal and the at least one of the enhanced encoded signals to produce decoded base and enhanced signals;

summing the decoded base and enhanced signals to create a sum decoded signal;

upscaling the sum decoded signal to create an upscaled signal;

encoding the upscaled signal to create at least one further enhanced encoded signal.

24.   A decoder for decoding a scalable signal comprising at least first, second, and third standards compatible decoders (602, 607, 613) arranged in parallel, the first decoder (613) being for decoding a base layer encoded signal (130) and for providing therefrom a first scale of decoded image, and at least the second and third decoders (602, 607) being for decoding first (314) and second (325) enhanced layer encoded signals

25.   The decoder of claim 24, further comprising:

a first adder (611) coupled to add signals from or derived from the first and second decoders, and providing a second scale of decoded image; and

a second adder (604) coupled to add signals from or derived from the first adder

5   and the third decoder and providing a third scale of decoded image .

26.   The decoder of claim 25, further comprising:

first means (608) for offsetting, coupled between an output of the second decoder and the first adder;

10   second means (618) for offsetting, coupled between an output of the third decoder and the second adder.

27.   The decoder of claim 26, further comprising means for upscaling (605), coupled between an output of the first adder and an input of the second adder.

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28.   A medium, readable by at least one processing device, embodying code for implementing functional modules comprising:

means for receiving an input video signal (201); and

at least one encoder (303, 310, 320, 420, 430, 540, 810) for producing from the

20   input video signal a scalable coding, the coding comprising at least a base encoded signal (130); an enhanced encoded signal (314); and an additional enhanced encoded signal (325, 435, 545);

wherein each encoder is compatible with at least one standard.

25   29.   A medium, readable by at least one processing device, embodying code for implementing functional modules comprising:

means for receiving an input video stream (201); and

at least one encoder/decoder (303/303', 310/310', 420/420', 430/531, 810/810')

pair for supplying a plurality of encoded layers of a scalable output video stream, each

30   encoder/decoder pair comprising a respective self-contained encoder module and a respective self-contained decoder module, which decoder module is distinct from the encoder module.

30.   A medium, readable by at least one processing device, embodying code for implementing functional modules comprising:

    means for receiving a single video input stream (201); and

    at least one encoder (303, 310, 320, 420, 430, 540, 810) operating in the pixel domain for supplying at least three encoded layers from the video input; wherein

    for producing a base layer the at least one encoder operates on a downscaled version of the single video input stream,

    for production of each layer other than the first layer, the at least one encoder is coupled to receive a respective difference signal or a signal derived from the respective difference signal, the respective difference signal representing a difference between:

    either a downscaled version of the single video input stream or the single video input stream itself; and

    either a decoded version of a previous encoded layer or an upscaled version of the decoded version of the previous encoded layer.

31.   A method of scalable video encoding comprising:

    receiving a single video input stream;

    downscaling the video input stream to produce a downscaled stream;

    encoding the downscaled stream to produce a base encoded layer;

    encoding a plurality of enhancement encoded layers, including producing a respective difference signal for each enhanced encoded layer, the respective difference signal representing a difference between:

    either the downscaled stream or the single video input stream, on the one hand; and

    either a decoded version of a previous encoded layer or an upscaled version of the decoded version of the previous encoded layer.

32.   A medium , readable by at least one processing device, embodying code for implementing functional modules comprising at least first, second, and third standards compatible decoders (602, 607, 613) arranged in parallel, the first decoder (613) being for decoding a base layer encoded signal (130) and for providing therefrom a first scale of

decoded image, and at least the second and third decoders (602, 607) being for decoding first (314) and second (325) enhanced layer encoded signals.